

Research Note

***Intaglicollonia*, a new name for the Eocene gastropod *Nehalemia* Hickman, 1974 (Gastropoda: Colloniidae)**

Intaglicollonia is proposed as a replacement name for the monotypic Eocene gastropod genus *Nehalemia* Hickman, 1974, family Colloniidae Cossmann, 1916. The type species, *Nehalemia hieroglyphica* Hickman, 1974, was based on 11 specimens from a siltstone unit at the top of the Cowlitz Formation in Washington County, northwestern Oregon (early late Eocene). The siltstone is immediately below the unconformable contact with the basal member of the overlying latest Eocene to earliest Oligocene Keasey Formation. The genus name is preoccupied by *Nehalemia* Blake, 1973, an asteroid echinoderm from the middle member of the Keasey Formation in Columbia County, Oregon. The type localities for both species are on the Nehalem River, approximately 25 km apart and with a vertical stratigraphic separation of approximately 450 m. Although the taxa are in separate phyla, the geographic and stratigraphic proximities of the type localities support the decision to avoid an orthographically similar replacement name.

Intaglicollonia is monotypic and its type species name retains the specific epithet originally proposed under *Nehalemia* by Hickman (1974). Although the genus is monotypic, it is the basal member of a putative evolutionary lineage in which intraspecific sculptural polymorphism has been studied, and named patterns of incised lines have an ontogenetic order of appearance in individuals (Noda and Ogasawara, 1976). Further study of variation in the onset of timing of the incised patterns has led to a model of heterochronic evolution in the lineage (Majima and Murata, 1992). The genus also has figured in the identification of the late Eocene origins of north Pacific deep-water communities (Hickman, 1984), in the characterization of biotic response to the Eocene-Oligocene climatic transition (Hickman, 2003), and in the reconstruction of patterns of trans-Pacific migration (Hickman, 2003; Amano, 2005).

Blake's (1973) genus is also monotypic and of considerable interest as a component of the famous Mist fauna in northwest Oregon in the upper part of the middle member of the Keasey Formation. The Mist locality is noteworthy as a Tertiary crinoid Lagerstätte (Moore and Vokes, 1953) as well as for its well-preserved asteroids, ophiuroids, and echinoids (Burns and Mooi, 2003). The carbonate layers at the Mist Locality are also noteworthy for providing petrographic and isotopic evidence of methanogenesis, possibly contemporaneous with the fauna and a potential cold seep environment (Burns et al., 2005).

New illustrations of the holotype of *Intaglicollonia hieroglyphica* are presented (Figures 1, 2) along with a detail of the fine engraved lines (Figure 3), which were

interpreted originally as an unusual form of discordant (non-collabral) secretory activity by the mantle (Hickman, 1974). Discussion with Jonathan Todd (The Natural History Museum, London) raises the interesting possibility that the lines are "pseudoetchings" (*sensu* Palmer and Plewes, 1993; Todd and Palmer, 2002) generated as an active secretory response to the presence of a thin, tubular commensal cnidarian. In this instance the shallowly-incised lines would represent systematic and continuous growth response by the snail to deformation of the periostracal sheet at the growing shell margin. Similar active deformation responses have been reported in fossil bivalves (Todd, 1993).

Intaglicollonia, *Phanerolepida* Dall, 1907 and *Cantrainea* Jeffreys, 1883 are known only from deep-water faunas and sedimentary facies (>200 m) and are distinguished from the shallow-water "dwarf turbans" of the colloniine genus *Homalopoma* Carpenter, 1864 by their larger size and lack of nodulose spiral ribs separated by deep grooves. Shells of the Mediterranean type species, *Homalopoma sanguineum* (Linnaeus, 1758) are 6–7 mm in diameter and red or pink in color, in contrast to the unpigmented shells of the larger-shelled species in the deep-water genera.

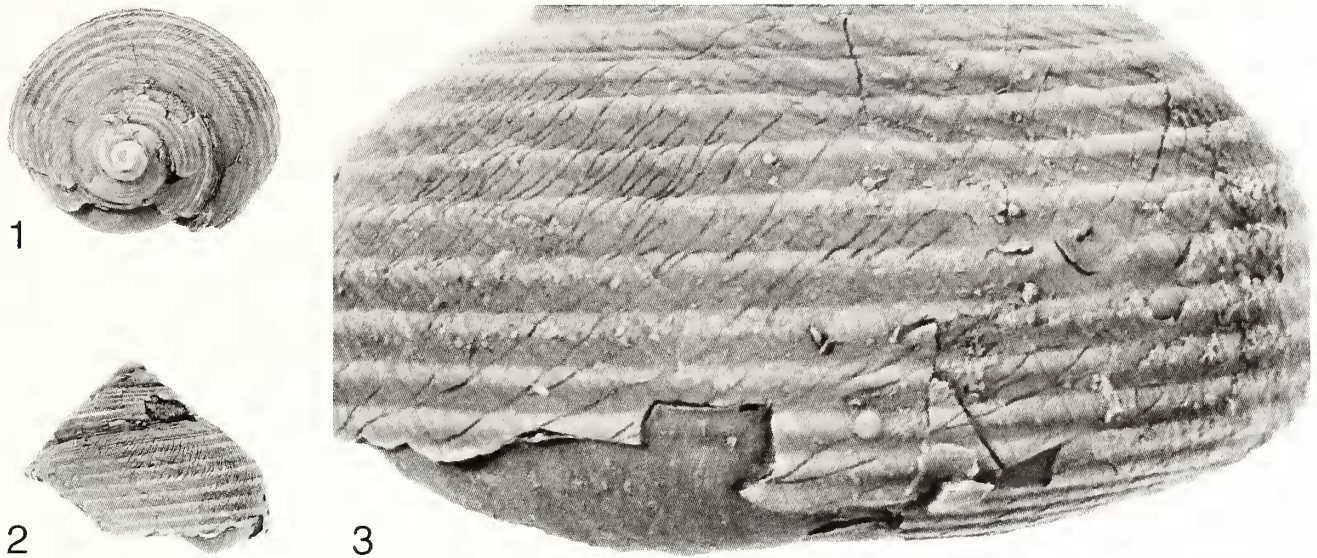
The replacement name *Intaglicollonia* is chosen to call attention to the finely-incised (*intagliare*) markings on the shell surface as well as emphasizing the taxonomic position of the genus in Colloniidae Cossmann, 1916, a basal gastropod family group with a concentration of morphological diversity in the Cenozoic fossil record (Hickman and McLean, 1990). Publication of the replacement name is prerequisite to a forthcoming reinterpretation of the taxonomy, paleoecology, and unusual features that *Intaglicollonia* shares with fossil and living species of *Cantrainea* and *Phanerolepida*.

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Figures 1–3. Holotype (USNM 647339) of *Intaghcolloma hieroglyphica* Hickman, 1979; height = 11 mm, diameter = 16 mm
1. Apical and **2.** Abapertural view **3.** Detail of incised sculpture on body whorl.

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